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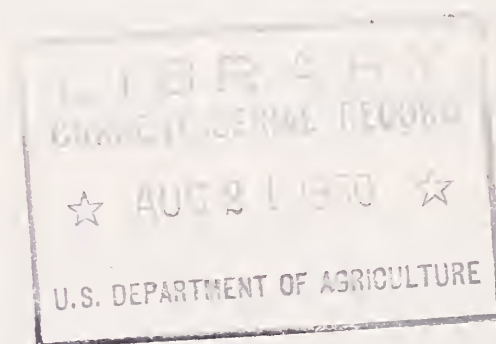
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# MARKETING ACTIVITIES



U. S. Department of Agriculture  
Production and Marketing Administration  
Washington 25, D.C.

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Potato chips, making themselves at home on family menus, are experiencing a consumption boom. At present about 8 percent of total potato consumption is going into the chipping trade which has increased its volume nearly 500 percent in the past decade. A growing market is seen for interested producers and handlers. Mr. Mercker is Chief, Potato Division, PMA's Fruit and Vegetable Branch.

### IT'S THE FAT; NOT THE LEAN

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There's good evidence that some of the fatter pork cuts are having a pretty lean time of it in the market place. Mr. Burmeister, PMA's Livestock Branch, shows how bacon has followed lard in the downward skid.

### WHERE'S YOUR FRUIT MARKET?

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Do you know which families, urban or rural, in what sections of the country, are consuming the most fruits or juices? USDA is finding out and making the information available periodically. Mr. Andrews of PMA's Fruit and Vegetable Branch is in direct contact with this survey.

### SHEEP MAY SPORT NEW BRANDS

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The long search for a scourable sheep branding fluid ended right on the sheep's back. Lanolin, a product of sheeps' wool, has proved to be the best and perhaps the most obvious base for the new branding fluid. Mr. LeCompte, Livestock Branch, has been in charge of the project under which the fluid was developed.

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# ✓ Hello, Mr. Chips ✕

By A. E. Mercker

Despite the fact that people for 50 years have been eating fewer and fewer potatoes, demand for the vegetable by one branch of the food processing industry is booming. This is the potato chip industry, whose members refer to themselves as "chippers." Mighty chipper they are too, what with an industry that has shown an increase in volume over the past 10 years alone of nearly 500 percent. At present, they use about 8 percent of all potatoes used for food in the United States. For producers of certain potato varieties, provided the potatoes are properly handled and stored, the industry offers a steadily growing market.

The potato chip is strictly American, probably more so than apple pie or the "hot dog" sandwich, which are to a certain degree variations of Old World products. It was discovered, invented, or, at least, developed in the neighborhood of Saratoga Springs, N. Y., sometime in the 1850's and the name "Saratoga Chips" or "Potato Chips, Saratoga Style," still persists in certain localities.

## Out of the Frying Pan, into the Fat

History of the product is the subject of many legends, but one of the stories of how the first potato chip came to be seems acceptable. It is, briefly, as follows:

Sometime, around 1853, an Indian cook by the name of "Aunt Kate" was working in an Inn on the shores of Saratoga Lake. While waiting for some doughnut fat to heat, she was slicing potatoes for frying. By chance, a thick slice of potato fell into the hot fat where it turned a golden, crispy brown.

At the fateful time the piece of potato was being fished out of the fat, a man named George Crum was in the kitchen. He picked up the potato "chip" and ate it. Impressed by its crispy taste, he urged "Aunt Kate" to cook some more. After testing a few herself, the cook prepared them for the Inn's menu and the "Saratoga Chip" was born.

Years after this, the potato chip remained a "home-made" product. That is to say, that while it was featured in the cuisine of hotels, restaurants and in many homes, it was not until around 1925 to 1930 that it was sold by retailers in the packaged form we know today. Just when the first chips were offered by retailers is hazy, but 40 years ago they were being sold by retailers in bulk from large cans.

Figures furnished to the U. S. Department of Agriculture on the production of potato chips go back as far as 1936 when the industry used 3,000,000 bushels of potatoes to produce about 45,000,000 pounds of chips. By 1941, the volume of potatoes going into chips had jumped to 5,000,000 bushels annually, and since then the spiral has been rising swiftly -- with the greatest increase from 1944 to 1945 when consumption of potatoes by the industry rose from 8,500,000 bushels to 13,300,000 bushels. Last year, 1949, the industry consumed 20,100,000 bushels of potatoes, as compared with 3,500,000 bushels just ten years before, a gain of 475 percent.

Production of potato chips in 1949 is estimated at about 304,000,000 pounds, or about 1 pound of chips from 4 pounds of potatoes, which is used as the year-around conversion average for the industry. Value of this production is placed at nearly \$250,000,000. In producing this volume of chips, the industry used over 130,000,000 pounds of cooking oils or shortening, predominately of vegetable origin. In the finished product about 40 percent of the weight is made up of these ingredients.

### Snappy Merchandising Has Sold Chips

What has caused this phenomenal increase in potato chip production and consumption? It is difficult to pinpoint any specific factor unless it could be the excellent job of merchandising chips that has been done in recent years by the industry and its trade organization, the National Potato Chip Institute.

Government experts cite as contributory causes the swing throughout the country to prepared foods, the fact that consumers are getting away from the idea that potato chips are a special or luxury type food, and the constantly improving keeping quality of chips due to better processing, better handling and better packaging. They also point out that the Potato Chip Institute, a research as well as trade organization, has done an outstanding job of promoting the product.

Chippers themselves stress that they started with a "basically good and appealing food" and through constantly improving methods of preparation, packaging and promotion have been able to build a wider market, particularly in homes, for a year-around product.

### Making Themselves at Home

Proof that the "home" market for potato chips has broadened considerably is furnished by a Washington, D. C. potato chip firm, whose plant manager shows that today 80 to 90 percent of his production goes into half-pound "family" size bags as compared with the situation in the 1930's when the bulk of his production went into the then more familiar 5 and 10 cent size containers. This manufacturer was careful to note, however, that Washington's higher average income level may affect this relationship -- and that chippers in certain other areas are still packaging the bulk of their production in the smaller sized containers.



Another factor cited by this chipper as an inducement to increased consumption has been the ability of progressive operators to hold down or offset production cost increases. Despite increased costs of cooking materials and potatoes since the end of World War II, this particular chipping firm has raised the wholesale price of a half-pound bag of chips only 1.25 cents in that period. Most of the increase in the costs of the firm's basic raw materials have been offset by savings in packaging costs through the use of automatic machinery that enables five employees to do work that formerly required twenty.

Let's take a look at a modern potato chip plant.

In this unit, production is almost entirely automatic. The continuous belt type of operation used turns out 500 pounds of chips every hour. Except for the packagers, only two men are employed in its operation.

The processing begins in the 2,000-bag capacity storage room of the plant, which is closed off from the rest of the operations. Even though potatoes might not be spoiled, their musty odor, particularly from old potatoes, might permeate the chips and other products cooked in the plant. Temperature in this storage area is kept at about "room heat," 70 to 80 degrees F.

One of the men on the continuous belt process works in this room dumping potatoes from sacks into a peeling machine. The "peeler" used in this plant is known as an "abrasive" type. It contains a revolving abrasive disk with ridges which toss the potatoes and keep them revolving while the skins are rubbed off and washed away by a continuous stream of water.

(Some of you may have been lucky enough to see a similar type of potato peeler in some of the induction centers during your early G. I. days.)

This "abrasive" type peeler is one of many types available. One is in process of development which soaks off skins by the use of a solution -- a preferable method since there can be as high as a 20 to 30 percent loss of potato in the peeler alone.

#### Best Potato Chips Have High Specific Gravity

From the peeler, the potatoes go on a stainless steel conveyor belt to a slicer. This machine resembles a giant food grinder except that its three bladed cutting knife revolves horizontally with the weight of the potato and the inward slant of the bowl forcing it down on the blade. This cutter can be regulated to make slices from 1/32 to 3/32 of an inch in thickness depending upon the type of potato being used. A good potato of high specific gravity -- low water content -- can be sliced the thinnest. Those potatoes, particularly new potatoes, with a high water content have to be sliced thicker, or as chippers explain it, "they would go up in smoke in the fryer." One particular chipper said that his plant could get as high as 30 to 32 pounds of chips from a 100 pound sack of

potatoes if they were high in specific gravity, as compared with a normal average of 25 pounds of chips.

From the slicer the potatoes go along another continuous belt to a washer, where the surface starch is washed off. From there they travel on another continuous belt to the fryer, or "cooker." In all, the potatoes receive ten to twelve washes in clean water between the peeler and fryer.

The "cooker" is composed of two units through which move continuous belts carrying the potato chips. In the first unit the cooking fat is at a much higher temperature than in the second. The purpose of the first unit is to sear the potato chips, preventing oil absorption in the second unit which cooks the chips more slowly at a lower heat until they are done. As the plant manager explained, the process is similar to the approved method of cooking a good steak -- a quick searing to retain all the goodness and prevent fat absorption, then slower cooking at lower heat until done. At the end of the last cooker, as the cooked chips move out to the packaging room, a fine shower of salt falls on them from an overhead container. The second man on the production line works here, constantly watching the temperature of the cooking fat and seeing that the chips coming out are of good quality.

From the cooker, the chips fall onto an endless belt where in "culling," the scorched, or otherwise unattractive pieces are picked out. It is here too that "sample" chips from a new shipment of potatoes are pulled out and inspected.

#### New Samples Earmarked, Tested

When a new shipment of potatoes is received, several from the lot are selected and marked by cutting holes through their centers. These potatoes are put in with those being processed and run through the complete operation. At the end the chips with holes in them can be lifted out and inspected to see if they have responded to the same type of cooking, and whether they have a higher or lower water content than those being prepared.

After "culling," the chips move on an endless belt into the packaging room. There they are automatically weighed in a machine which funnels an exact half-pound into a cellophane bag. The filled bags are placed on another moving belt that carries them through an automatic bag sealer. At the end, they are packed, a dozen 1/2 pound bags in a carton, ready for distribution.

It is a practice of one plant to code its packages of chips, and, if necessary, pick them up from retailers after 20 days. This is the minimum length of time it is felt by this firm that chips will retain their crispness and tastiness, based on average temperature and humidity in his area. (This varies considerably between sections of the country, since chips keep better in a cool, dry area than where it is hot and humid.)

While the operation outlined above is representative of that carried



out by one of the largest potato chip manufacturers in the country, there are other operators of varying degree of size ranging upward from so-called "batch" cookers with only one small kettle where chips are cooked a few at a time. Some of these "batch" process and "one-kettle" producers are very successful.

One thing that all chippers have in common, however, are problems singular to their industry. These are complicated by many factors, but to a large degree they are problems which producers and handlers of potatoes, interested in the substantial market the potato chip industry affords, could help solve.

Three of these problems are of major importance: (1) obtaining a variety or varieties of potatoes suitable for chipping; (2) being assured of a constant and unchanging source of supply of such potatoes, either fresh or from storage where they have been handled in such a manner that they can be used for chipping; and (3) steadily working for improvement of keeping quality of chips through better packaging or other methods. Since producers and handlers cannot do much with regard to this latter problem, this article is concerned only with the first two problems above. (Work on the latter problem is underway, however, at the U.S. Department of Agriculture's Western Regional Laboratory, Albany, California, under the direction of Dr. Martha E. Davis.)

### Certain Characteristics Essential

Since chippers have largely been taking what they can get in the way of potatoes and still have expanded their industry so successfully it may be thought that this problem of a suitable potato is over-emphasized. It is, however, of such importance that some chippers throughout the country are growing their own potatoes and one chipper in Washington, D. C. has recently purchased a farm in nearby Virginia for this purpose.

At present, chippers complain that the chief defects encountered in potatoes purchased for chip making are varietal mixtures even in relatively small lots, a large percentage of potatoes are bruised and immature, and there is a prevalence of such undesirable conditions as late blight rot or fusarium storage rot. Such conditions vary with localities, of course, though shippers maintain that in the eastern United States they experience the greatest difficulty in obtaining potatoes of quality good enough to produce uniformly well colored chips.

### Exacting Storage Requirements

In a recent report on these problems in the industry's trade magazine, THE POTATO CHIPPER, Dr. Ora Smith, director of research, National Potato Chip Institute, had this to say:

"Growers and dealers could well afford to acquaint themselves with the storage requirements of potatoes for best chip production. It would be to the mutual advantage of the potato handler and chipper to cooperate closely on these requirements."

The ideal potato for chipping must be high in specific gravity, or, to put it the other way around, low in water content. The specific gravity of potatoes influences chip yield, since a potato with high water content must be sliced thicker else it will burn to a crisp when cooked. Furthermore, such a chip absorbs more fat in cooking. The ideal potato must be fully mature, for immature potatoes have a high water content and contain green spots which show up in chips. It must have a low reducing sugar content. The more reducing sugar a potato contains the darker the chips it makes. Some potatoes have a natural high reducing sugar content while others build it up in storage. The ideal potato should be about U. S. No. 1 size, since it makes the best sized chips. It should be as free as possible of knobs, eyes and sprouts, since taking these irregularities off in a peeler means a heavier loss of potato. Finally, and quite important, the ideal potato must have good storage qualities.

#### Certain Varieties Best Suited

Although no known potato variety meets all of these specifications, certain varieties come much closer than others. This has been discovered after considerable research under the auspices of the U.S. Department of Agriculture. Research work on potatoes suitable for chipping and the handling and storage of chip potatoes is headed up in two of the many sections of the Department's large research center at Beltsville, Md.

The development of a better potato for the production of chips is under the direction of Dr. F.J. Stevenson, internationally known for his breeding experiments and development of new types of potatoes. Dr. Stevenson is head of the Potato Section of the Division of Fruit and Vegetable Crops and Diseases of the Bureau of Plant Industry.

Solutions to the problems of storing and handling and suitability of potatoes for chipping are being worked out by Dr. R. C. Wright, physiologist, Dr. P. H. Heinze, physiologist, and T. M. Whiteman, horticulturalist, all with the Handling, Transportation and Storage Investigations Section of the Fruit and Vegetable Crops and Diseases Division. This phase of the work being done on chipping potatoes is known as Research and Marketing Act Project 147 and its objectives are:

"(1) To determine to what extent potatoes can be classified as to their cooking quality on the basis of variety, or section of the country where grown, or storage conditions; (2) to develop tests for these qualities that can be used by purchasers for judging suitability of any given lot of potatoes for different methods of preparation, such as baking, boiling, or frying; (3) to determine what methods of cooking are most suitable for potatoes of different variety, origin or treatment; (4) to evaluate potato varieties and new selections for chip manufacturers; and (5) to determine how qualities required for satisfactory chip manufacture can be maintained during storage of the potatoes."

The project was requested by the National Restaurant Association, the United Fresh Fruit and Vegetable Association and the National Potato Chip Institute and was set up as a joint project between the Bureau of Plant Industry and the Bureau of Human Nutrition and Home Economics of the Department.



In the research work already done it has been shown that the most suitable varieties of potatoes for chipping are the Russet Rural and Katahdins. Following, in second rank, are Sebagos and Cobblers, and the less favorable White Rose used in the West. However, there are other potatoes that make chips of outstanding attractiveness, both from storage at 55 degrees F., or after reconditioning at 70 degrees F. for 22 days, following storage at 40 degrees F. They are, Chippewa, Kennebec, Netted Gem, Norkota, Rural New Yorker, and Teton. The last makes exceptionally good chips, is good yielding and resistant to ring rot.

#### Temperature Affects Sugar Content

The storage temperatures mentioned above are recommended by the Beltsville researchers for keeping potatoes to be used for chipping. At 50 degrees F. or slightly higher, potatoes sprout quicker than at lower temperatures. Storage at 40 degrees F. eliminates this problem, but builds up reducing sugar content in potatoes. Reconditioning, through holding at 70 degrees F. for about two or three weeks, will bring the sugar content of the above named varieties down to where they are suitable for chipping.

Two new types of potatoes developed by Dr. Stevenson which are said to hold great possibilities for chipping are the "New Kennebec," first released about two years ago and for which seed is being released as rapidly as possible and the "Canus" (Canada-U.S.), developed in cooperation with Canadian breeders. Neither variety is as yet in large production, although some of the latter are being grown in North Dakota.

In tests for losses in peeling, it was found that Sebagos, Russet Rurals and Katahdins showed the least loss while Irish Cobblers and Green Mountain varieties showed the greatest.

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#### COLOR CHART OF CONSUMER GRADES FOR POTATOES RELEASED BY USDA

Actual size pictures in two colors are used to illustrate a 30 x 45 inch poster showing U. S. consumer grades for potatoes which has recently been issued by the U.S. Department of Agriculture. The chart carries four illustrations of round or intermediate varieties and the same number of pictures of long varieties of potatoes.

Although consumer grades were announced by the USDA in 1947, it was not until the past season that potatoes were marketed in these grades. Some 1,000 cars packed in consumer packages have been shipped to markets from Maine.

Single copies of the chart are available free from the Information Branch, PMA. Educational and non-commercial agencies may secure additional copies by including in their requests their plans for use of the charts.

August 1950



# ✕ It's the Lean, not the Fat ✕

By Charles A. Burmeister

The "Jack Sprats" among American consumers seem to be in the majority these days. At least the leaner cuts of pork are being sought after more than the fat cuts -- a trend which has been evident for more than twenty years judging from comparisons of prices of different pork products.

In bygone years, bacon, an important fat cut, normally maintained a favorable price relationship with the lean pork cuts. Not so in recent years because the price of bacon has advanced much less than the price of fresh ham. For instance, while wholesale prices of fresh ham in 1949 averaged 123 percent higher than they did in 1920-29, the average price of fresh bacon bellies was only 67 percent higher. Bacon, principally a breakfast meat, is perhaps a casualty of the lighter morning meals of today.

## Bacon Going the Way of Lard?

Many people who may be surprised at this bacon price lag are well aware of what's been happening to lard. This product, too, has not been keeping pace pricewise with the leaner pork cuts. In 1949, the yearly average price of lard was down seven percent from the average of the 1920 decade. By contrast, the average price of lean cuts was up 81 percent. Lard, pushed by tough competition from other fats and oils, has been finding it more and more difficult to maintain its position in the market. The only way to move it into consumption has been to lower the price.

These changes are having a profound effect on live hog prices. Since meat products sell in the market for the highest prices obtainable, the prices obtained at any particular time for each kind of product reflect consumer demand for the available supply of that product. Changes in price relationships for lean and fat parts of hogs mean a shift in consumer likings for the various pork products. And since packers base their payments for live hogs on the returns from sale of all the products, these eating switches are bound to affect hog prices.

Some knowledge of the amount of these various products obtained from a hog is needed to understand just how important they are in final hog value. Let's take a look at an average hog and see how much fat and lean cuts and lard it produces. In the first place about 65 pounds of major edible products comprising lean cuts, fat cuts and lard are obtained from 100 pounds of live weight of hog. In hogs of the more desired weights--200 to 240 pounds--the lean cuts total around 35 pounds

in 100 pounds of live weight. Of course, the yield of lean cuts as well as that of lard and fat cuts varies according to the type of hog and degree of fatness. Lard yield per hundred pounds live weight is from 12 to 14 pounds and fat cut yield is about 17 pounds, of which three fourths is bacon belly.

Thus it's clear that any change in value of these products will have a marked effect on hog prices. Now let's see how the value of these products from a hundred pounds of live hog has shifted percentage-wise. In the period 1909-19, the value of lean cuts was equal to about 48 percent of the total product value, while in 1949 it rose to nearly 65 percent. But what has happened to the value of lard and fat cuts? The value of the 15 pounds of lard, which was formerly 21 to 24 percent of total product value, represented only about 10 and one-half percent in 1949. And the value of fat cuts dropped from 26 percent of the total value in earlier years to about 21 percent in 1949.

#### Trend Translated into Dollars

So much for these broad percentage-wise comparisons of the effect of these changes. What has this trend meant in dollars and cents to the hog producer, buyer and slaughterer? Some rough estimates have been made of the extent hog prices were lowered in 1949 by declines in fat cut and lard prices in relation to lean cut values. The average wholesale value of lean and fat cuts and lard in 100 pounds of live hog in 1949 was \$20.70. If price relationships that year had been the same as the average of 1905-19 and lean cut value had remained unchanged at \$13.87, the value of the products from a hundred pounds of hogs would have been about \$28.00 or about \$7.30 higher than it actually was in 1949.

But we needn't go back as far as the early years of the century for comparisons. For instance, if the price relationship in 1949 had been like those in the 1935-39 period, the total value of the lean and fat cuts and lard would have been about \$3.60 per hundred pounds higher than it actually was. This decline in value from the 1935-39 price relationship represented a reduction of the impressive sum of \$559,000,000 in the market value of the 15.6 billion pounds of hogs sold for commercial slaughter in 1949.

#### Demand Firm for Lean Pork

Where does this change in consumer demand for pork leave hog producers? Obviously if they are to hold their economic position, producers must take some steps to meet the changed needs of consumers for pork products. However, in making the adjustment it is well to recognize that there are no definite indications that demand for lean pork products has changed markedly in relation to beef; thus the problem for hog producers is primarily that of a decline in demand for the other pork products -- fat cuts and lard.

Some of the reasons which have brought about these changes should be considered. The new methods of handling and distributing food make



possible year-round availability of fruits and vegetables and other perishables that were only seasonally available a few years ago. They provide consumers a wider range of food from which to select than they ever had in the past. Workers now on shorter work days and weeks and physically less strenuous jobs due to labor saving equipment, now need less food of high fat content. Finally, larger groups of consumers can now be more selective in their food purchases because of the marked rise in their incomes during the last decade.

### Marketing Adjustments Needed

As a result of all these changes, consumers are less willing to buy lard, bacon, fat backs, plates and jowls than formerly. On the other hand, they continue to show an increased preference for the lean pork cuts such as ham, picnics, Boston butts, and loins (pork chops). This is a situation farmers need to recognize. They must then take steps to adjust their production to capitalize on it. Adjustments, however, should not be limited to production. Hog marketing practices will need a radically different emphasis in order to help farmers complete the needed shifts in production techniques.

Changes in management and feeding practices afford an excellent opportunity to increase the proportion of lean to fat cuts in most any type of hog. In addition to these management and feeding changes, considerable progress has been made by animal husbandry specialists and some producers through selective breeding in developing hog types that will produce more lean and less fat. Progress along feeding, management and breeding lines, however, will come much more rapidly if the prices paid for hogs reflect more accurately the value of the animals on the basis of their product yield.

The present method of evaluating and pricing hogs chiefly on the basis of weight doesn't give much encouragement to those who produce hogs with a high lean cut yield. In fact, this method works to their disadvantage ("Hog Selling on a Merit Basis"--MARKETING ACTIVITIES, May 1949). It's obvious that some changes are needed in determining hog values when the products from hogs of the same weight may differ in value by as much as \$2.00 per hundred pounds live weight--yet in nearly every instance there is little difference in the prices paid for these hogs in the market.

### New Grades Are Practical

To help bring about desired changes in methods of pricing hogs, grading specialists in the Livestock Branch of USDA's Production and Marketing Administration set out to develop a new system of grading hogs. ("Three Hogs Went to Market"--MARKETING ACTIVITIES, February 1950 and October 1949.) The grades evolved are based on the relationship of yields of lean cuts to fat cuts. Practical application of the use of the grades in buying has already been made by some packers. This, together with trial demonstrations at markets throughout the hog producing area, has indicated definitely that the new grades are a practical approach in helping to solve one of the biggest problems now confronting hog producers and the meat packing industry.



# Where's Your Fruit Market?

By Robert J. Andrews

Did you know that during a recent 3-month period over half of the household purchases of Florida oranges were made in the Northeast region? Or that during the period October 1949-March 1950, farm families on the average bought more raisins, dried peaches, and dried apples than city families? That at the same time a larger percentage of families in the big cities bought canned juices than families in smaller cities and on farms?

These and many more such facts are being brought to light in a study of the fruit buying habits of American families through a consumer panel. Several thousand families representing a cross-section of all households in the United States are daily recording their purchases in a log made available to researchers.

## Product of Broad Cooperation

Carried out under the auspices of the Research and Marketing Act of 1946, by the Bureau of Agricultural Economics, the Fruit and Vegetable Branch of the Production and Marketing Administration, and cooperating fruit industry groups, the study at present covers fresh citrus fruits, canned juices, frozen concentrated juices and dried fruits. The data are being obtained by the Industrial Surveys Company, Inc., under contract with the U. S. Department of Agriculture.

The information obtained gives an accurate picture of current household purchases on a continuing basis thereby providing valuable assistance in the development of marketing policies. For example, it is possible to determine areas of high and low consumption--in the first quarter of 1950, the Northeast accounted for 36 percent of the total U. S. household purchases of dried prunes. This was larger than purchases in any other region. The North Central region accounted for 30 percent of the total, the Southern region, 14 percent and Mountain and Southwest and Pacific regions, 10 percent each.

Of equally keen interest to those engaged in marketing may be the information on the characteristics of the families buying the products. The study showed that in the 6-months period from October 1949 through March 1950 over twice as many families in the highest income level purchased frozen concentrated orange juice as did those household consumers in the lowest income level, and that a larger percentage of families with children under 6 years of age bought frozen concentrated orange juice than did families with no children or with older children.

Still another question covered in the survey, is: "Where do families buy these products?" As an example, during the first quarter of 1950, independent groceries accounted for 35 percent of all household purchases of fresh grapefruit; national or major chains, 26 percent; regional chains, 23 percent; and "other outlets" such as fruit stands, delicatessen stores, and specialty stores, 16 percent. Or it may be asked: "How much are consumers buying and what are they paying?" In May 1950, consumers bought 1,462,000 cases (equivalent No. 2 cans) of canned single strength orange juice at an average price of 15.4 cents per No. 2 can. In contrast, in May 1949, householders purchased 1,812,000 cases of canned orange juice and paid an average of 13.1 cents per No. 2 can.

### Results Published Monthly

The data on current purchases are issued monthly under the title, "Consumer Purchases of Selected Fresh Fruits, Canned and Frozen Juices, and Dried Fruits." Included are figures on the total consumer purchases of each product during the month, the percentage of families buying, and the average price per unit paid by householders. For example, in May 1950 it was reported that 14.5 percent of the families in the United States purchased frozen concentrated orange juice, and the data show too that these purchases totaled 1,243,000 gallons at an average price of 27.2 cents per 6-ounce can. Similar information is given for each canned juice, each fresh citrus fruit, and each dried fruit. More surprising are the figures showing that on the basis of fresh orange equivalent, the relative importance of frozen concentrated orange juice, as a percentage of total household purchases of oranges and orange products, increased from 5 percent in the first quarter of 1949 to 19 percent in the same quarter of 1950.

### Quarterly Report Covers Distribution

Quarterly, a report is issued summarizing the distribution of family purchases of each product by regions (Northeast, South, North Central, Mountain and Southwest, and Pacific) and by type of store management (national chain, regional or local chain, and independent grocery). The report is entitled "Regional Distribution and Types of Stores Where Consumers Buy Selected Fresh Fruits, Canned and Frozen Juices, and Dried Fruits." Included are data on total household consumer purchases, average size of individual consumer purchases, average prices paid by consumers for each item, and consumer purchases per 1,000 capita.

In addition, the data are summarized periodically according to family characteristics. Volume of purchases and prices paid are related to geographic region, size of community in which the buying family lives, the size of the family, the presence of children, the family income, occupation of the family head, and the age of the housewife. The influences of these factors on the family purchasing habits has been reported for the period October 1949 through March 1950 in a publication titled, "Consumer Buying Practices for Selected Fresh Fruits, Canned and Frozen Juices, and Dried Fruits, Related to Family Characteristics, Region, and City Size."



To supplement the information on consumer purchases, data on the availability of certain fresh and dried fruits, canned juices, and frozen concentrates in retail stores throughout the country also are being obtained. This information, collected on the basis of a national probability sample of nearly 2,000 retail food stores of all types, representing a cross-section of such outlets over the country, shows the percentage of stores handling these food products. The information is classified and summarized by size of stores (annual volume of sales), type of store management, size of city (population), and geographic region.

With the results of the two studies at hand, all those interested in marketing any of these products have much fuller information than ever before on what, where, and when the product is bought and where the product is available. Merchandising efforts now can be aimed at the spots where they will do the most good or where special effort is most needed. The end result is more efficient marketing.

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#### FARM LABOR WAGES STEADY: EMPLOYMENT LOWER

Pay rates for hired farm workers on July 1, 1950 averaged about the same as a year earlier, but farm employment during the week June 18-24 was down 4 percent from the same period in 1949, according to the July Farm Labor report of the Bureau of Agricultural Economics.

Both family and hired employment shared the decline, although the latter was up 31 percent over May 1950, a more than seasonal increase. Average of all farm wages for the country as a whole on an equivalent hourly basis was placed at 56 cents as of July 1, the same as a year ago.

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#### COMMERCIAL TRUCK CROP ACREAGE DOWN

The 1950 planted acreage of 10 major truck crops for commercial processing is estimated at 1.6 million acres, 6 percent under 1949 planted acreage and 11 percent under the 10-year average, according to the Commercial Truck Crops report of July 11 of the Bureau of Agricultural Economics. These 10 crops, snap beans, green peas, lima beans, beets, cabbage for kraut, cucumbers, Georgia pimientos, spinach and tomatoes, account for 95 percent of the planted acreage of the 11 (asparagus is the other crop) processing vegetables estimated by the Bureau.

Except for cucumbers, the July 1 condition on processing crops was reported to be better than average. Prospects for processing crops for harvest in July and later are generally satisfactory, BAE reports.



# Sheep May Sport New Brands

By George C. LeCompte

Sheep throughout the country may soon be branded by a new and greatly improved branding fluid recently developed through research, and based on lanolin, a product of sheep themselves.

Sheep in most parts of the country are branded much for the same purpose as cattle -- to establish ownership and particularly to make separation easier when two bands of sheep are unavoidably run together. However, branding of sheep has taken a different form -- sheep escape the branding iron, but are marked with some sort of fluid such as ordinary paint or tar.

## Need: A Fluid With a Dual Personality

This branding of sheep has long posed a two-way problem. If the branding material were durable enough to stick to wool for long periods of time as it must, it usually would not scour easily from the fleece, thus creating a serious and costly removal problem in the wool manufacturing process. If the brand scoured easily, it conversely would not have the durability needed. Seemingly, the problem called for a branding fluid of contradictory sticking and non-sticking characteristics and it is no wonder that it has plagued wool producers and processors for many years.

## Sheep Supply the Answer

After trying many different materials in the search for a fluid that would combine the properties of durability and scourability, the quest in the PMA Livestock Branch laboratories for this elusive material ultimately led back to the sheep. The grease cleaned from sheeps' wool, known as lanolin, undergoes a long period of exposure to air and sunlight and as a result has none of the drying and hardening properties of ordinary oils. Happily it can be washed from wool in the normal scouring process. Laboratory experiments indicated that lanolin was the simplest and perhaps most obvious vehicle for the scourable branding fluid.

The next step -- testing this lanolin-base fluid under actual Western grazing conditions -- proved conclusively that the product met the first of the two necessary requirements. Branding marks made by this fluid were both intact and clearly legible after a year of exposure to the rigorous Idaho Rocky Mountain climate. This field test was made on around 3500 sheep at the Bureau of Animal Industry Sheep Experiment Station at DuBois, Idaho.

# WOOL, PREVIOUSLY MARKED WITH BRANDING FLUIDS, IN VARIOUS STAGES OF MANUFACTURE

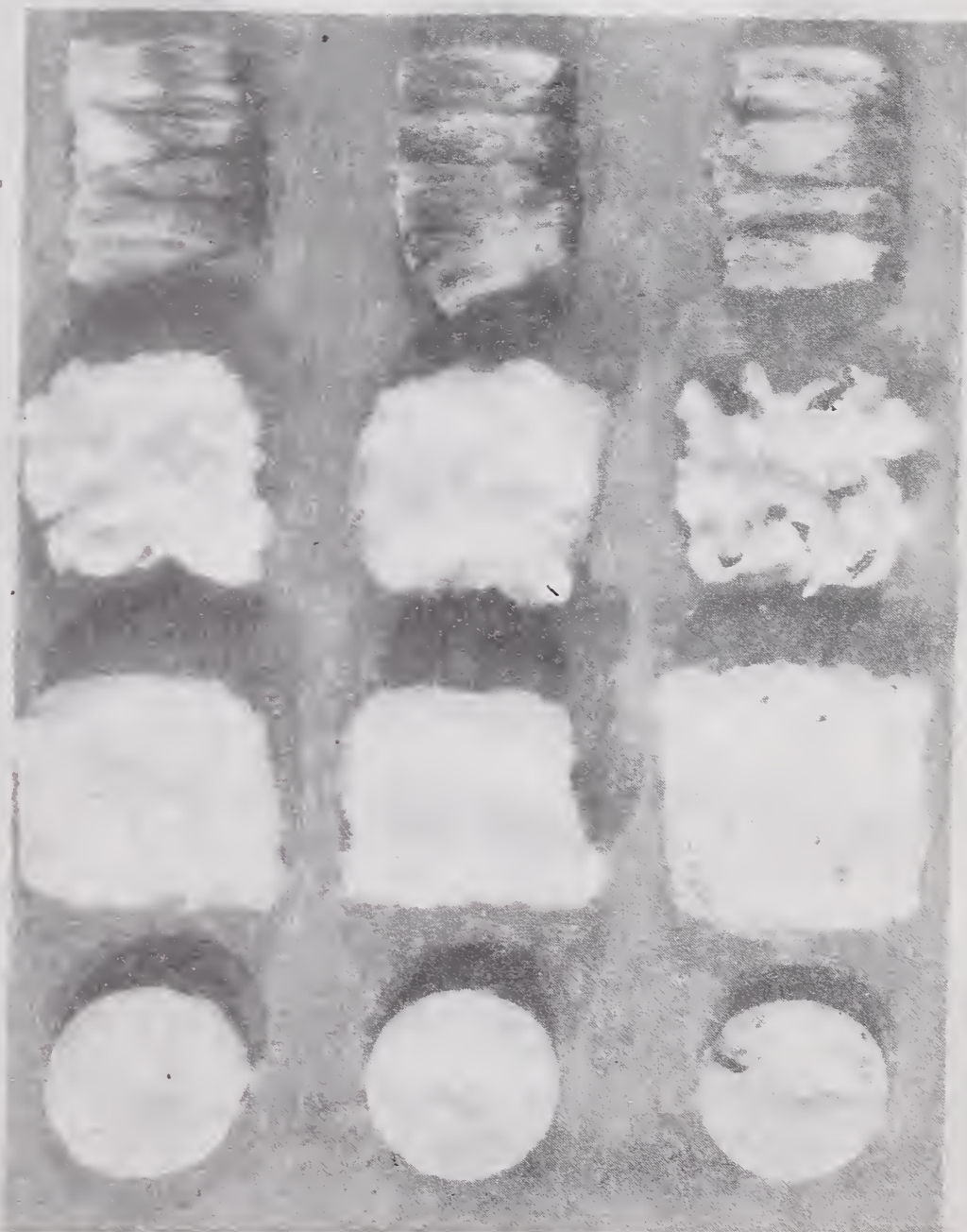
SCOURABLE ·		ORDINARY
BRANDS		PAINT
FINE WOOL	3/8 WOOL	FINE WOOL

GREASE  
WOOL

SCOURED  
WOOL

CARDED  
WOOL

FELTED  
WOOL



This display shows wool marked with both scourable and non-scourable fluid in various stages of laboratory processing. Both wool markings had a year of exposure on sheeps' backs. The felted wool produced from the wool marked with scourable branding fluid shows no spots, while the felted wool from that marked with paint has several unsightly spots that will require costly hand spotting.



The branding fluid also met the second requirement of being completely removable from the wool in the usual scouring process. Wool on which the brands had been painted was sorted from the remainder of the fleeces and sent on for processing into cloth at the Forstmann Woolen Company. This firm's Director of Research, Werner von Bergen, observed and described the scouring operation in detail. Included in the shipment were one sort of 835 pounds of fine and half-blood wool, and another sort of approximately 380 pounds of three-eighths and quarter-blood wool. Mr. von Bergen pointed out that all of the wool from these two sorts was carded, combed and woven into cloth which was completely free of the discoloration that normally appears from branding marks.

### Paint Marks Are Costly

In his report, Mr. von Bergen elaborates on some of the problems wool manufacturers face in handling paint wool. He points out that in 1949 the average sorter in his company spent 1/2 hour daily in clipping paint wool. The total cost of this work was figured at \$4,300. Further, this company sold about 6,000 pounds of this wool containing branding paint for 17 to 18 cents a pound whereas such wool had cost from 75 cents to a dollar a pound. These two costs totaled over \$10,000, and the company's troubles didn't end with this.

Mr. von Bergen points out that it is not humanly possible for wool sorters to detect all wool carrying brand marks, with the result that some carry into the manufacturing process and later show up as unsightly spots in the cloth. Removing the spots is a painstaking hand operation. Mr. von Bergen explains that in 1949 his company handled approximately 1,500,000 pounds of wool with branding marks, and despite the fact that the paint wool was clipped and sold at a great loss, 23,000 pieces of cloth made from the wool had to be subjected to this costly cleaning or "depitching" process. The total cost of this was figured at more than \$38,000. Thus, all the costs of handling this paint wool averaged about 3.23 cents per pound, clean basis, on the 1,500,000 pounds of wool originally marked with non-scourable branding marks.

### Losses Must Be Shared

While most of the paint or brand problems in paint wool center in the manufacturing process, producers also have a considerable stake in this problem. No doubt, companies other than Mr. von Bergen's have similar troubles with paint wool. Certainly a part of their cost is reflected back to the grower in lower prices for wool marked with a non-scourable branding fluid.

To help solve this difficulty and also to improve the marketability of wool, the research work was initiated early in 1942. It was soon recognized that the desired fluid had first to withstand the combined rigors of rain, snow, immersion in streams and sheep dips, sunshine, dust storms, and physically harsh treatment such as rubbing against bushes, trees and other sheep. Passing these tests, the fluid would not be practical unless it could be removed from the wool during the normal manufacturing processes. Wool is customarily given a hot, alkaline,



water bath at least once during its processing. Thus the ideal material was one that would not survive such a treatment but would wear like iron in the cold, neutral, water hazards it encountered under natural conditions on a sheep's back.

Many materials such as various fats and oils, shellac, waxes, fatty acids, casein, gelatin and glue were given consideration, while mineral oils, petrolatum, paraffin, and tars were soon discarded as possible bases. The choice of pigment or coloring matter posed a much less difficult problem because many are available which will do the job.

### Tests Difficult

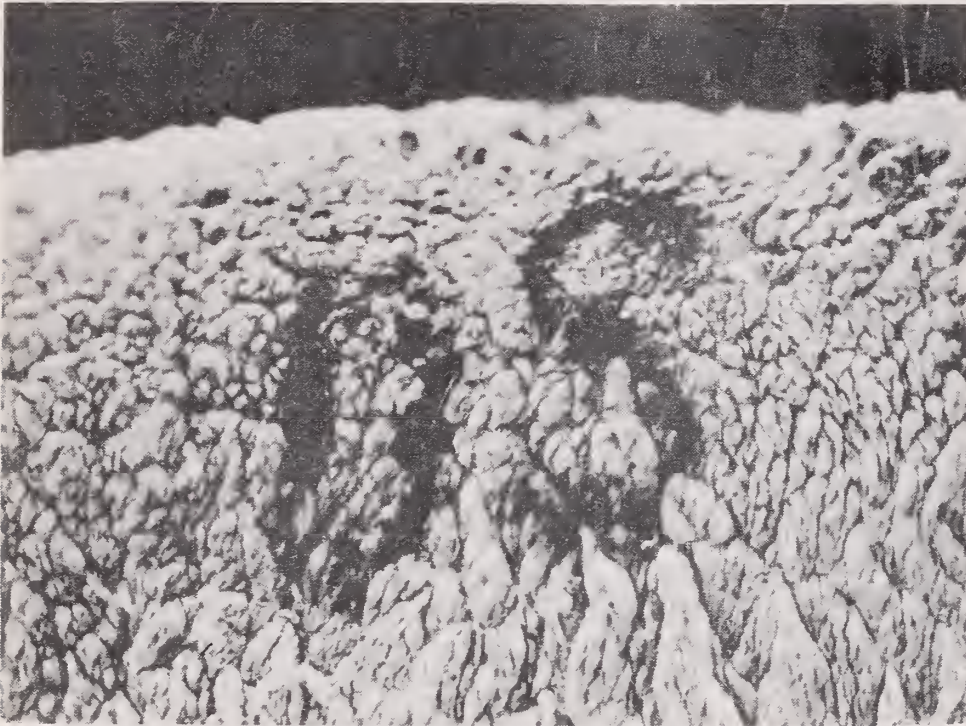
One by one the materials that were possibilities as a vehicle for the branding fluid were discarded as various experiments showed them to be impractical. In the 1942-43 laboratory experiments, lanolin and mixtures of it with stearic acid and rosin showed the greatest promise. However, the tests proceeded rather slowly. For one thing there was no way to make quantitative comparisons between the varied formula because it was an all or none basis -- either the fluid scoured or it did not. Another problem was the failure of accelerated laboratory aging processes to duplicate actual conditions. An experimental brand might remain scourable throughout all of the laboratory processes of baking, exposure to water, natural sunlight or artificial light. In the field, however, fluids which appeared successful in the laboratory were not always scourable after exposure on sheep's backs. The reason for this was not determined but probably resulted from extraneous materials that impregnated the brands as the sheep grazed.

Correct amounts of pigment or coloring matter were found to be extremely important in actual tests. If the amount was too little, the brand was not as clear and distinguishable as it should have been. On the other hand, if the amount was too much, the scourability was impaired.

### Lanolin Base Proves Out

First practical field test was begun by branding 50 sheep at the BAI sheep station at Dubois. But these tests progressed slowly because of occasional evidences of unscourability while laboratory operations indicated the fluids to be completely scourable. A large-scale field test was started in the spring of 1947, to be followed by a commercial scouring of the branded wool in 1948. This was not completed because, unfortunately, ordinary paints were applied to some of the fleeces by mistake. By the spring of 1948, when the second large-scale test described earlier was undertaken, the lanolin formula had proved itself to be the most durable and scourable. In the summer of 1949 the fleeces were sheared and after the year's exposure, the brands showed satisfactory durability. The black scourable brand was clearly legible -- the blue, while still distinct, had darkened and was difficult to tell from the black -- the red was satisfactory -- the green was a trifle faint but a higher concentration of pigment corrected this fault. Only the yellow had blended with dust on the fleece and was indistinguishable.

Although this first lanolin base fluid was successful, one defect appeared. In cold weather, the fluid stiffened excessively. Use of rosin with the lanolin has since permitted the use of more solvent so the product is now thick enough in warm weather and does not stiffen badly in cold weather. Another development in the offing is a more fluid lanolin.



After a year of exposure on the back of a Columbia sheep at the BAI Sheep Station, the black scorable brand is still clearly legible.

consider a premium in prices for wools free from non-scorable paint. This development could well be another step in the advancement of a great American industry.

With such experiments proving good durability and excellent scourability for this branding fluid, a practical and successful product is a reality. Growers should soon have an opportunity to remove the paint defect from their wool through use of branding fluids manufactured on the basis of this formula. Great impetus may be given to this needed change if wool buyers and manufacturers would

#### Reports Available

Copies of the complete report on this research as well as a detailed description of the scouring process may be obtained upon request to the Information Branch, Production and Marketing Administration, U.S. Department of Agriculture, Washington 25, D. C.

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#### FIGURES HANDLED TOO ROUGHLY

In last month's article, "A Label That Didn't Stick," incorrect tonnage figures were listed for volumes of tomatoes and grapes handled in 1948 under Federal-State inspection of raw products for processing. The reference, which appeared in the 4th paragraph, page 5, should read:

"The principal commodities, listed roughly by volume in tons handled, are the following: tomatoes, 1,193,322; oranges, 541,058; pears, 196,303; apples, 114,634; sour cherries, 43,705; grapes, 29,877; peas, 20,473; corn, 12,037." -- Editor.



# Marketing Briefs

Cotton.--The Production and Marketing Administration of the U. S. Department of Agriculture announced June 27 that the Commodity Credit Corporation will support the price of 1950-crop upland cotton, by loans to farmers complying with acreage allotment and marketing quota regulations, at 90 percent of the parity price as of August 1, 1950, the beginning of the marketing year. PMA also announced that CCC will make interim price support loans available to eligible producers in the early harvesting areas on 1950-crop upland cotton prior to August 1, 1950, at 27 cents per pound, basis Middling 7/8-inch cotton at average location.... Commodity Credit Corporation has sold 78,770 bales of 1948-crop pooled cotton pursuant to its offer to sell dated June 7, 1950, according to PMA. Bids were opened on June 14, 1950. The 1949-crop cotton was pooled for the account of producers on August 1, 1949. To date, 386,761 bales of 1948-crop pooled cotton have been sold.

Fats and Oils.--Import controls on fats and oils, rice and rice products will continue in effect until June 30, 1951, PMA announced June 30. The controls were to have expired at the end of this June but new legislation enables the Department to continue limited import restrictions for another year. The legislation approved by the President on June 30, 1950 authorizes the control of imports of fats and oils, rice and rice products, if the commodities are in short world supply or control is deemed necessary to facilitate orderly liquidation of Government-owned or -controlled surpluses of these commodities. It specifically exempts petroleum and petroleum products as well as coconuts and coconut products, including copra and coconut oil, from import control.

PMA, on June 27, announced a price support program for 1950 crop peanuts which provides for (1) price support at 90 percent of parity as of August 1, 1950, for farmers' stock peanuts produced on allotted acres in 1950, and (2) the method of handling peanuts produced on excess acreage, in accordance with recent legislation. 1. Edible Peanuts. Prices for farmers' stock peanuts produced on allotted acreage will be supported by means of producer loans and purchases, and by sheller contracts, as in the past. In 1950, as in 1949, a producer who does not pick and thresh in excess of his 1950 acreage allotment will be eligible for price support at 90 percent of parity on his entire production. 2. Excess (Oil) Peanuts. The 1950 program also provides, in accordance with the provisions of recent legislation (Public Law 471), that a producer may grow and pick or thresh peanuts from acreage in excess of his farm allotment without affecting his eligibility for price support at 90 percent of parity on the peanuts produced on the allotted acreage if both of the following conditions are met: (1) the total picked and threshed acreage of peanuts for the farm for 1950 is not greater than the 1947 picked and threshed acreage of peanuts for the farm; and (2) the peanuts produced on

the acreage in excess of the allotment are delivered for crushing for oil, to agencies designated by the Secretary of Agriculture.

Grains.--PMA announced on June 27 that 1950-crop corn in the commercial corn area will be supported at 90 percent of the parity price as of October 1, 1950, for producers in compliance with acreage allotments. For the non-commercial corn area an interim average loan rate of \$1.05 a bushel was announced. Rates by counties will be announced at a later date. The final rate for the noncommercial corn area will be 75 percent of the commercial area rate. (Note: If the loan rate for corn had been computed on the basis of May 15 parity, the rate for the commercial corn area would average about \$1.43 a bushel. Price support for the 1949 crop now being marketed averages \$1.40 a bushel nationally.)

PMA also announced June 27 that 1950-crop rough rice will be supported at 90 percent of the parity price as of August 1, 1950, for producers who comply with acreage allotments. Parity price on rice is computed on the basis of the revised formula provided by the Agricultural Act of 1949. (Note: If the loan rate for rice had been computed on the basis of May 15 parity, the rate would be \$4.52 per 100 pounds or about \$2.03 per bushel. Price support for the 1949 crop now being marketed averages about \$3.96 per hundredweight, or about \$1.78 a bushel.)

#### Wheat Support Announced

Wheat price support at a national average of \$1.99 a bushel to farmers for the 1950 crop was announced June 30 by PMA. Last year's rate was \$1.95 a bushel. Loans and purchase agreements covering the 1950 crop will be available through the Commodity Credit Corporation in accordance with the general program provisions announced by the Department on June 27, pending determination of the specific support level announced today. (The 1950 average loan rate for U. S. Grade No. 1 is \$2.00 a bushel). The price support for the 1950 crop, as required by applicable legislative provisions, is 90 percent of parity at the beginning of the marketing year, July 1. July 1 parity is \$2.21 a bushel. For the same date last year the wheat price parity was \$2.17 a bushel. Only wheat grading No. 3 or better, or No. 4 or No. 5 because of test weight or because it contains wheat of the classes durum and/or red durum, will be eligible for loan or purchase. The loans will be available through January 1951, and will mature on April 30, 1951 or earlier on demand.

#### Other Grain Support Prices

The 1950 crops of oats, barley, rye, and grain sorghums will receive price support under the permissive provisions of the Agricultural Act of 1949, PMA announced early in July.

National average levels of support, with comparisons for 1949, are as follows:

	<u>1949</u>	<u>1950</u>
Oats	\$ .69 per bushel	\$ .71 per bushel
Rye	1.27 per bushel	1.28 per bushel
Barley	1.09 per bushel	1.10 per bushel
Grain Sorghums	2.09 per cwt.	1.87 per cwt.



The price support programs for these crops will be carried out, as in the 1949-50 marketing year, through loans and purchase agreements. Commodity Credit Corporation loans and purchase agreements will be available to producers through January 1951.

Honey.--On June 30, PMA announced that the price which beekeepers receive for honey will be supported at 9 cents per pound during the 1950 marketing season which began April 1. Under the provisions of the Agricultural Act of 1949, price support on honey is mandatory for the first time, at levels ranging from 60 to 90 percent of the parity price. The support price applies to extracted honey produced in the continental United States, packed in clean, sound tin cans of 60-pound net capacity, equal to or better than U. S. Grade B and delivered to packer's plant. Department officials point out that the 9 cents per pound is 60 percent of the 60-pound container parity price as of April 1, 1950. In the 1949 season, prices to beekeepers were mostly in the range of 7 to 12 cents per pound for honey sold in 60-pound containers.

Livestock.--Effective June 30, schedules of selling prices for the 1950 shorn and pulled wool price support programs will be suspended indefinitely, PMA has announced. Present selling schedules are being withdrawn because of a previously announced policy to maintain 1950 wool selling prices as high as market prices. Market prices for wool have been rising rapidly for several weeks and are now far above prices in the selling schedules. Since no wool has been purchased under the 1950 program and few, if any, purchases are expected in the remaining portion of the 1950 wool marketing period, no plans are being made for announcing revised selling schedules at this time. Wool still available for sale from previous programs amounts to about 350,000 pounds according to latest information compiled from handlers' reports. A year ago wool available for sale amounted to nearly 100 million pounds. Stocks now on hand are the remainder of about 1,750,000,000 pounds of wool purchased under war-time and postwar wool programs.

Tobacco.--Under the price support loan program for 1950-crop tobacco announced June 27 by PMA, types of tobacco under marketing quotas will be supported by Commodity Credit Corporation at the specific levels required by the Agricultural Act of 1949. These levels are: flue-cured tobacco, 90 percent of parity as of July 1, 1950; Burley tobacco, 90 percent of parity as of October 1, 1950; fire-cured tobacco, 75 percent of the Burley support level as of October 1; and dark air-cured and Virginia sun-cured tobacco, 66-2/3 percent of the Burley level as of October 1, 1950. Based upon current estimates of the Department, the supply percentage of Maryland tobacco would result in a support level at 86 percent of parity and 88 percent of parity in the case of cigar filler and binder types. Final support levels of types not under quota (Maryland and cigar filler and binder) will be determined as of October 1, 1950.

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#### JUNE FARM INCOME

Farmers received about 1.8 billion dollars from marketings in June 1950, slightly more than in May, but 10 percent under June 1949, according to BAE. Prices averaged about the same as in May this year and June last year, but volume was off substantially compared with June 1949.

## ABOUT MARKETING

The following publications, issued recently, may be obtained upon request to the Production and Marketing Administration, U. S. Department of Agriculture, Washington 25, D. C.

### Publications:

Operations of Country Buying Stations in Relation to Egg Quality. May 1950. 24 pp. (PMA) (Processed)

A Look at The School Lunch Storeroom. June 1950. 13 pp. (PMA) (Printed)

Partners in Conservation. PA-113. June 1950. 2 pp. (PMA) (Printed)

Milk and its Products--Program for 1950. PA-119. May 1950. Folder. (PMA) (Printed)

Carlot Shipments of Fresh Fruits and Vegetables by Commodities, States, Counties and Stations, Calendar Year 1949. June 1950. 52 pp. (PMA) (Processed)

Operations of Central Assembling Plants in Relation to Egg Quality. May 1950. 26 pp. (PMA) (Processed)

The Wholesale Produce Market at Indianapolis, Ind. June 1950. (PMA) (Processed)

U. S. Consumer Grades for Potatoes. 2-color poster. (PMA)

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